waters for the successful inauguration of this interesting and important phase of forestry instruction.

The value of the extensive timber investigations planned and carried on by Dr. Fernow, when Chief of the Division of Forestry, U. S. Department of Agriculture, is more and more appreciated by practitioners and investigators, as the results become better known. One of the important results was the discovery of the relation between the strength of a beam and of a column of the same material, which was deduced and mathematically developed by F. E. Neely, C.E., from the many thousand tests made on comparable material during the extended general test series.

This winter, Professor C. A. Martin and Mr. George Young, Jr., both of the College of Architecture, Cornell University, have, under the auspices of Professor F. Roth, of the New York State College of Forestry, in connection with the course on Timber physics, carried on a series of tests, published in *Engineering News*, that furnish experimental proof of the correctness of this relation, which is that the strength of a beam at the elastic limit is equal to the strength of the material in endwise compression.

In other words, if we wish to know what load a beam will carry without injury to its elastic properties, we only need to test the material in compression to failure; the load which accomplishes the failure is also the extreme load for a beam strained to the elastic limit.

The practical value of this discovery is readily seen: A simple test in compression gives, without the introduction of difficult formulæ, immediate answer to the practically important question of the beam strength to safe limits.

The tests also remove any doubt as to whether wood possesses a definite elastic limit, which, although less pronounced than in metals, is, nevertheless, readily recognized.

THE FORTHCOMING MEETING OF THE BRITISH ASSOCIATION.

THE issue of *Nature* for June 14th contains an article by Mr. Ramsden Bacchus giving an account of the plans for the Bradford meeting of the British Association from which we take the following particulars:

The meeting promises to be an unusually large and important one. Bradford being midway between London and Edinburgh, serves as a common meeting ground for scientific men from the south of England and from Scotland and Ireland, and it is within easy reach of the Midland and Northern University Colleges. Bradford and Leeds are so close together that for such a purpose as this they are almost one city, and the Bradford Committee, therefore, have the advantage of the Yorkshire College being practically on the spot. The last meeting of the British Association in Bradford was held in 1873, but since that time the city (which, by the way, was then only a town) has practically been rebuilt, and has grown and developed in a manner resembling the progress of an American rather than that of an English town.

It is probable that the number of visitors will be far above the average; already some sixty or seventy Fellows of the Royal Society have announced their intention of being present, and professors and eminent lecturers from nearly every university in England, Scotland and Ireland have promised to attend. The Church will be represented by the bishop of Ripon, the legal profession by the Master of the Rolls and Lord McLaren, and the names of over a score of members of both Houses of Parliament have been sent in.

The meeting will commence on Wednesday, September 5th, when the new President, Professor Sir Wm. Turner, of Edinburgh, will deliver his address in St. George's Hall. On the following evening the Mayor of Bradford will give a conversazione in St. George's Hall, at which it is hoped there will be exhibits illustrating the most recent scientific work. On Friday evening the lecture will be delivered in St. George's Hall by Professor Gotch, F.R.S., on 'Animal Electricity.' The lecture to artisans on Saturday will be given by Professor Silvanus Thompson, F.R.S., and it is expected that there will be an audience in St. George's Hall of 4000 to 5000 working men. On Monday afternoon the Mayor and Corporation will give a garden-party in Lister Park, and in the even-

ing an address will be given by Professor W. Stroud on 'Range-Finders.' The Mayor and Corporation will give another large conversazione on Tuesday evening, and on the Wednesday evening a concert will take place in St. George's Hall with the Permanent Orchestra and the Festival Choral Society, under the conductorship of Mr. Fredk. Cowan.

During the week there will be a textile exhibition at the Technical College, which will illustrate the various processes of the local industries, and the machinery employed can be seen in motion. There will be a reception at the College on Thursday afternoon, September 6th, and the smoking concert in honor of the President will also be given at the Technical College, after Professor Gotch's lecture on Friday.

Excursions to places of interest in the neighborhood will be made on Saturday, the 8th, and on Thursday, the 13th; among the places selected are Bolton Priory, Ripon and Fountains Abbey, Malham, Clapham and Ingleton, the Nidd Valley, Farnley Hall, Haworth, Ilkley, Knaresboro' and Harrogate. In addition to a number of smaller guides to the places to which excursions are to be made, the usual guide book will be provided by the Publications Committee. This book will be divided mainly into three sections. The first will deal with the history of Bradford and the development of the Bradford trade, the second section with the Bradford industries and institutions, and the third part, which is under the sectional editorship of Mr. J. E. Wilson, will deal with the scientific material of the locality, the flora, fauna, geology, meteorology, climate and public health. There will be in addition a number of pages devoted to the topography of the district, for which Mr. J. H. Hastings is responsible.

SCIENTIFIC NOTES AND NEWS.

On June 12th and 13th the delegates to the conference on the International Catalogue of Scientific Literature met in the rooms of the Royal Society, London.

The American Academy of Arts and Sciences has elected Sir Archibald Geikie, F.R.S., an honorary foreign member in the place of the late Carl Friedrich Rammelsberg.

Professor Charles F. Chandler, of Columbia University, and Professor J. Mark Baldwin, of Princeton University, have been given by Oxford University its newly created D.Sc. degree.

The degree of doctor of engineering has been conferred on Mr. J. Elfreth Watkins, of the U. S. National Museum, by the Stevens Institute of Technology, in recognition of his long and valuable studies in the history of the development of railroad engineering in the United States.

At the last meeting of the Royal Society of Edinburgh, according to *Nature*, the following were elected as British Honorary Fellows: Dr. Edward Caird, master of Balliol College, Oxford; Dr. David Ferrier, professor of neuropathology, King's College, London; Dr. G. F. Fitzgerald, professor of natural and experimental philosophy, Trinity College, Dublin; Dr. Andrew Russell Forsyth, Sadlerian professor of pure mathematics in the University of Cambridge; Dr. Archibald Liversidge, professor of chemistry in the University of Sydney; Dr. T. E. Thorpe, principal of the Government Laboratories, London; and, as Foreign Honorary Fellows: Dr. Arthur Auwers, secretary, Royal Prussian Academy of Sciences; Professor Wilhelm His, Leipzig; and Professor Adolf Ritter von Baeyer, Munich.

Dr. S. Gabriel has been appointed assistant director in the newly built chemical laboratory of the University of Berlin.

The managers of the Royal Institution, London, on the occasion of the retirement from office of the honorary secretary, passed a unanimous resolution to place on permanent record an expression of their high appreciation of the admirable way in which he has performed the duties of that office, and of his signal services to the Institution generally.

The formal opening by Lord Lister of the new clinical laboratories at the Westminister Hospital took place on June 12th. Among those present were Sir John Wolfe Barry, Chairman of the House Committee, Lord Kelvin, Dr. Church, the President of the Royal College of